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# **National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT)**

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# Boiler MACT Overview

- Understanding of Requirements
  - Notification submittals
    - » Initial Notifications
    - » Notifications of Compliance Status
  - Record Keeping
  - Performance Testing
    - » Fuel requirements
    - » Stack testing or continuous monitoring
  - Periodic Tune-ups
  - Energy Assessments

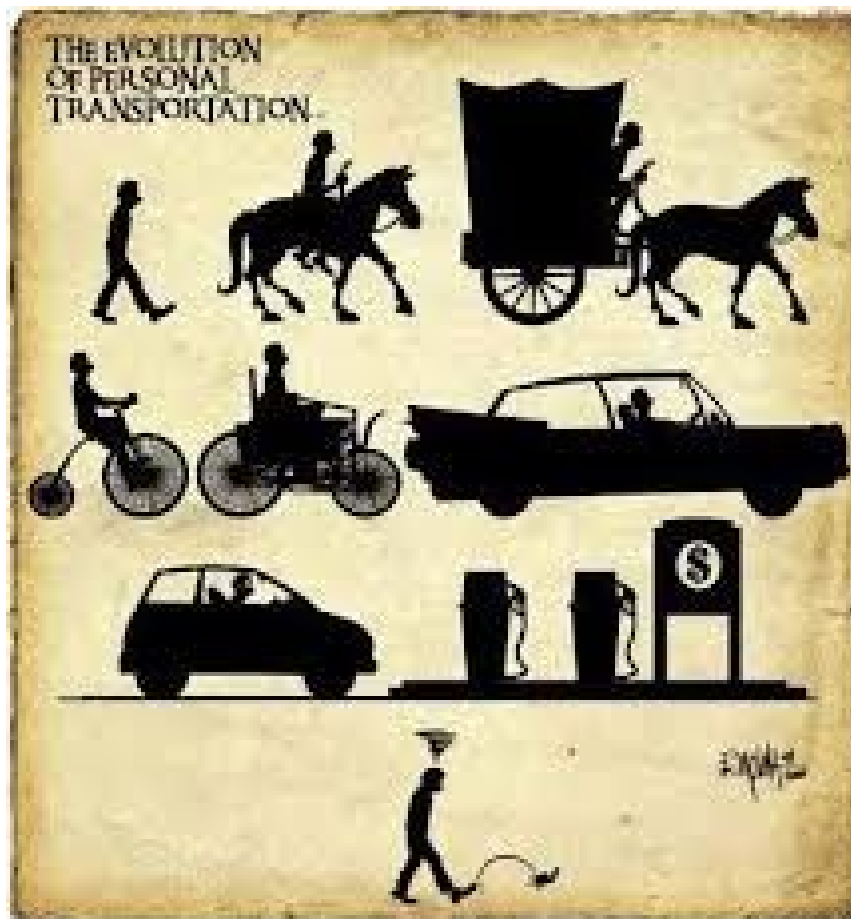


**IDEM**

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# Boiler MACT Rule Evolution





# Exclusions to the Boiler MACT Rule

- Hot water heaters with a capacity of no more than 120 gal and not exceeding 160 psig
- Waste heat boilers or heat recover steam generators
- Boilers used as control devices for NESHAP requirements
- Research and development boilers
- Hazardous waste boilers or boilers subject to other NESHAP section 129 standards
- Electric Boilers
- Residential boilers
- Temporary boilers





# Step 1 – Area or Major?

An area source has the potential to emit less than 10 tons per year (tpy) of any single air toxic (HAP) or less than 25 tpy of any combination of HAPs.

A major source has the potential to emit equal to or greater than 10 tpy of any single HAP or equal to or greater than 25 tpy of a combination of HAPs.

**Area  
Source**

**Major  
Source**





# Step 1 – Area or Major?

Emission Unit	PM	PM10	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs
Shot Blasting	143	286	NA	NA	NA	NA	11.8
Painting Operations	14	14	NA	NA	26	NA	2.8
Degreasers	NA	NA	NA	NA	2	NA	NA
Boiler	0.1	0.4	0	6	0.3	5	0.1
Combustion Units	0	1	0.1	16	1	14	0.3
TOTAL	157	301	0.1	22	29	19	<b>15</b>



## Step 2 – Indentify Boilers

- Heat input in MMBTU/hr?
- Type(s) of fuel used?
- Date purchased or rebuilt?

Boilers [326 IAC 6-2-4]

- One (1) natural gas-fired boiler, identified as Bonderizing Boiler (BB1), constructed in 1996, with a rated capacity of 4.184 million British thermal units per hour, and exhausting to stack SBB1;
- One (1) natural gas-fired boiler, identified as Parkerizing Boiler (PB1), constructed in 1996, with a rated capacity of 1.47 million British thermal units per hour, and exhausting to stack SPB1;
- One (1) natural gas-fired boiler, identified as Administration Bldg (ABB3), constructed in 1994, with a rated capacity of 0.96 million British thermal units per hour, and exhausting to stack SABB3;





# Clean Gas (NG or Refinery Gas)

Do you burn oil or use backup fuel?

NO

Exempt from Area Source Rule Requirements

YES

Do you burn oil for more than 48 hours per year?

NO

Meter and record fuel usage monthly

YES

Boiler's fuel subcategory is oil

**Area Source**







**Clean Gas (NG or Refinery Gas)**

**Boiler Heat Input Capacity  
10MMBTU/hr?**

LESS THAN

**Exempt from Major  
Source Rule  
Requirements**

EQUAL TO OR GREATER THAN

**Constructed on  
or before June 4,  
2010?**

BEFORE

AFTER

**EXISTING  
REQUIREMENTS**  
\*Annual tune-up  
\*One-time energy  
assessment  
\*No emission limits

**NEW BOILER  
REQUIREMENTS**  
\*Annual tune-up  
\* No emission  
limits

**Major  
Source**





# Oil, Biomass, and Coal less than 10 MMBTU/hr

Purchase or rebuild  
after June 4, 2010?

AFTER

BEFORE

## NEW BOILER REQUIREMENTS

- \* Initial Notification by 1/20/14
- \* First tune-up must be scheduled no later than 25 months or 61 months as applicable after startup
- \* Meter and report fuel usage monthly

## EXISTING BOILER REQUIREMENTS

- \* Initial Notification by 1/20/14
- \* First tune-up by 3/21/14
- \* Meter and report fuel usage monthly

**Area  
Source**





**Oil, Biomass, and Coal  
equal to or greater than  
10 MMBTU/hr**

**Purchase or rebuild  
after June 4, 2010?**

AFTER

ON OR BEFORE

**NEW BOILER  
REQUIREMENTS**

- \* Initial Notification by 1/20/14 or
- \* Meter and report fuel usage monthly
- \* Minimize startup and shutdown periods
- \* Numeric emission limits for PM, Hg, and CO 180 days after startup
- \* First tune-up by 3/21/14

**EXISTING BOILER  
REQUIREMENTS**

- \* Initial Notification by 1/20/14
- \* Meter and report fuel usage monthly
- \* Minimize startup and shutdown periods
- \* Numeric emission limits PM (filterable), Hg, and CO
- \* First tune-up by 3/21/14
- \* Conduct one-time energy assessment by 3/21/14

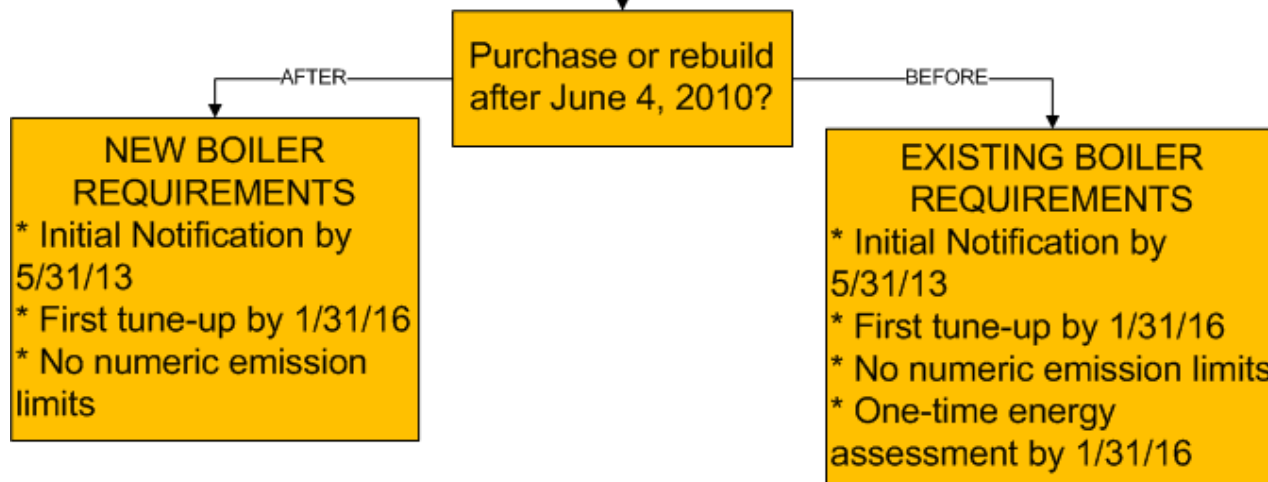
**Area  
Source**





**Oil, Biomass, and Coal less  
than 10 MMBTU/hr**

**Major  
Source**







**Oil, Biomass, and Coal  
equal to or greater than  
10 MMBTU/hr**

**Major  
Source**

**Purchase or rebuild  
after June 4, 2010?**

AFTER

BEFORE

**NEW BOILER  
REQUIREMENTS**

- \* Initial Notification by 5/31/13
- \* First tune-up by 1/31/16
- \* Numeric emission limits for (Hg, CO, HCl, and PM (or TSM))

**EXISTING BOILER  
REQUIREMENTS**

- \* Initial Notification by 5/31/13
- \* First tune-up by 1/31/16
- \* Numeric emission limits for Hg, CO, HCl, and PM (or TSM)
- \* One-time energy assessment by 1/31/16







# Tune-up Frequency

Oxygen Trim System? – Tune up required every 5 years or within 61 months after initial startup

- Oxygen Trim System and Burners must be inspected every 72 months

No Oxygen Trim System?

- **AREA SOURCE:** Tune-up required **every 2 years** or within 25 months after initial start up
- **MAJOR SOURCE:** Tune-up required **annually** or within 13 months after initial startup

**Area  
Source**

**Major  
Source**





# Tune-up Frequency Every 5 Years

## Seasonal Boilers

- Shutdown for 7 consecutive months or 210 days

Oil-fired Boilers  $\leq$  5MMBTU/hr

## Limited Use Boilers

- Federally enforceable average annual capacity factor of no more than 10%

**Area  
Source**

**Major  
Source**





# Tune-up Requirements

- Measure concentrations in the effluent stream of CO and oxygen in PPM by volume **BEFORE** and after adjustments are made
- Inspect burner or clean or replace any components as necessary
- Inspect the flame pattern and adjust the burner as necessary
- Inspect the air-to-fuel ratio system (Oxygen Trim System) and adjust as necessary
- Optimize total emissions of CO

**Area  
Source**

**Major  
Source**





# Energy Assessment

- $\leq .3$  TBtu/hr heat input capacity
- 8 on-site technical labor hours
- Includes boilers and any on-site energy use systems account for at least 50% of the boiler's energy
- Completed on or after 1/1/2008
- ISO 50001 certified or similar program are waived of the energy assessment

**Area  
Source**

**Major  
Source**





# Demonstrating Compliance With Emission Limits

- Fuel Analysis
- Performance Stack Testing
- Continuous Monitoring Systems (CMS)
  - Continuous Opacity Monitoring System (COMS)
  - Continuous Parameter Monitoring System (CPMS)
  - Particulate Matter Continuous Parameter Monitoring System (PMCPMS)
  - Total Selected Metals (TSM)

**Area  
Source**

**Major  
Source**







# Performance Testing

- After 2 years of consecutive annual performance test data at or below 75% of an emission limit, the source can continue monitoring every 3 years or ever 37 months

**Major  
Source**





# Compliance Dates

- Initial Notification **1/20/14**
- Notice of Compliance Status (**120** days after compliance date) for tune-ups or energy assessments via U.S. EPA Central Data Exchange (CDX)
- Notice of Compliance Status for boilers with emission limits every March 1 via CDX
- Notification within 30 days of a fuel switch or a boiler being in a different category





# Compliance Dates

- Initial Notification **5/31/13**
- Notice of Compliance Status (**60** days after compliance date of 1/31/16) for tune-ups or Energy Assessments via U.S. EPA Central Data Exchange (CDX)
- Notice of Compliance Status for boilers with emission limits every March 1 via CDX
- Notification within 30 days of a fuel switch or a boiler being in a different category





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For more information about CTAP or to  
request assistance go to:

[www.idem/IN.gov/ctap/index.htm](http://www.idem/IN.gov/ctap/index.htm)

Or call us at:  
(800) 988-7901

